IN THE SPECIFICATION

At line 1 on page 1, please change the title for this patent application to:

"SUPPLY UNIT FOR A DRIVER CIRCUIT AND METHOD OF OPERATING SAME"

Please replace the first paragraph starting at line 2 on page 1 with the following:

"CROSS REFERENCE TO RELATED APPLICATIONS

"This application is the national phase under 35 U.S.C. § 371 of PCT International Application No. PCT/EP2005/002521, which has an international filing date of March 10, 2005, and which claims priority to German patent application number GE102004013708.2 filed March 17, 2004.

"FIELD OF INVENTION

"This invention provides a method for operating a power stage in a power electronics circuit for an electric motor. The invention also provides a supply unit for a driver circuit for an electric motor.

"BACKGROUND OF THE INVENTION"

Please add the heading "SUMMARY OF THE INVENTION" after line 20 on page 2.

Please delete lines 25-27 on page 2.

Please delete line 17 on page 5.

On page 6, please replace the paragraph starting at line 4 with the following:

The control device can be designed so that, in a further turn-off operation, it first of all turns off the second switch and measures a free-wheeling current through the second free-wheeling current path in order to switch the first switch on the basis of the measured free-wheeling current. The effect which can be achieved by this is that first the first and then the second switch are alternately turned off [[first]] in each turn-on/turn-off operation so as [[thus]] to check the operation of the first and second switches in succession.

On page 6, please replace the paragraph starting at line 10 with the following:

In line with a further embodiment, the supply unit comprises a first control circuit and a second control circuit, which is separate from the latter, with the first control circuit controlling the switching of the first switch and measuring the current through the first free-wheeling current path. The second control circuit accordingly controls the switching of the second switch and measures the current through the second free-wheeling current path. The first control circuit and the second control circuit are coupled to one another such that the first control circuit generates the first control signal on the basis of a second Active signal on line 25 which is applied by the second control circuit, and the second control circuit conversely generates the second control signal on the basis of [[an]] a first Active signal on line 24 which is applied by the first control circuit.

On page 7, please replace the paragraph starting at line 1 with the following:

So that the first and second Active signals on lines 24, 25 cannot be generated incorrectly, said signals are provided as a periodic signal or as a signal sequence from the respective control circuit, so that in the event of a fault the ~~periodic~~ Active ~~signal continues~~ signals on lines 24, 25 continue to be produced. The periodic signal or the signal sequence has the advantage that in the event of a fault in the respective control circuit which would result in a permanent state of the corresponding Active signal this state does not result in the respective control signal continuing to be generated in the duplicate other control circuit.

Please add the heading "BRIEF DESCRIPTION OF THE DRAWINGS" after line 12 on page 7.

Please add the heading "DETAILED DESCRIPTION OF THE INVENTION" after line 18 on page 7.

Please replace the paragraph starting at line 19 on page 7 and concluding on page 8 with the following:

Figure 1 shows a block diagram of the actuation of an electric motor in a drive system. A control system 1 generates actuation values, with an electric motor 2 being intended to be actuated on

the basis of the actuation values. The electric motor 2 is usually actuated using a power electronics circuit 3 which comprises a power stage 4 and a driver circuit 5. In the example shown, the power stage 4 generates three phase currents and for this purpose typically has 6 electronic switches (not shown) which are actuated by means of respective switching signals from [[a]] driver circuit 5. The electric motor 2 is preferably in the form of a synchronous or asynchronous motor, particularly in the form of an electric motor which can be operated using an electrical rotating field and has no separate commutation.

On page 10, please replace the paragraph starting at line 18 with the following:

A first control circuit 22 and a second control circuit 23 are provided for generating the first and second control signals on lines 27, 28 for the switches 14, 15. The first control circuit 22 is connected to the first current sensor 20, so that a measured free-wheeling current in the first free-wheeling current path 16 is provided in the first control circuit 22. The first control circuit 22 is connected to a [[first]] control ~~connection~~ input of the first switch 14, particularly to the gate connection of the first field effect transistor. The second control circuit [[22]] 23 is connected to the second current sensor [[23]] 21, so that the measured free-wheeling current in the second free-wheeling current path 17 is available in the second control circuit 23. The second control circuit 23 is connected to a control input of the second switch 15, i.e. to the gate connection of the second field effect transistor.

Please replace the paragraph starting at line 28 on page 10 and concluding on page 11 with the following:

The first control circuit 22 is connected to the second control circuit 23 via a first Active signal line 24 in order to transmit [[an]] a first Active signal to the second control circuit 23. A second Active signal line 25 is provided, so that the second control circuit 23 can transmit a second Active signal to the first control circuit 22. The control circuits 22, 23 receive, via a signal line 26, an externally prescribed enable signal which permits or prevents actuation of the electric motor 2. In addition, each of the control circuits 22, 23 has an input for a clock signal CLK. The control circuits are synchronized to this clock.

On page 11, please replace the paragraph starting at line 6 with the following:

The text below describes the mode of operation of the first control circuit 22 with regard to the first switch 14 and the first free-wheeling current path 16, the second control circuit 23 operating in essentially similar fashion with regard to the second switch 15 and the second free-wheeling current path 17.

On page 11, please replace the paragraph starting at line 10 with the following:

The first and second control circuits 22, 23 receive the enable value via the data line 26 and, at the start of the period duration, generate a respective turn-on signal as a first control signal on line 27 or as a second control signal on line 28, which is supplied to the first switch 14 or the second switch 15, respectively, e.g. a high level. The respective turn-on signal turns on the switches 14 and 15, so that the high supply potential VDD is connected to the first connection of the primary coil 10 and the low supply potential GND is connected to the second connection of the primary coil 10. When a turned-on period has elapsed, the first control signal on line 27 is switched such that the first switch [[15]] 14 is turned off, e.g. by changing to a low level. The turnoff operation produces a free-wheeling voltage on the primary coil 10 of the transformer 11, said voltage being reduced via the first free-wheeling current path 16.

On page 11, please replace the paragraph starting at line 20 with the following:

The free-wheeling current in the first free-wheeling current path 16 is measured using the first current sensor 20, and the measured value is made available to the first control ~~deviee~~ circuit 22. The latter compares the measured current value with a threshold current value which is chosen such that it is possible to detect that a significant free-wheeling current is flowing. This allows the switching behavior of the first switch 14 to be checked. This is because if the first switch 14 is not interrupted on the basis of the first control signal on line 27, the first current path 16 through the primary coil 10 is not interrupted and a free-wheeling voltage which would need to be reduced via the first free-wheeling current path 16 does not arise. This is detected as a fault in the first control circuit 22, and further generation of [[a]] the first control signal on line 27 to turn on the first switch 14 is stopped.

On page 12, please replace the paragraph starting at line 1 with the following:

If a free-wheeling current in the first free-wheeling current path 16 is measured which exceeds the threshold current value, the first control circuit 22 generates [[an]] a first Active signal on ~~the first Active signal~~ line 24, as a result of which the first Active signal is transmitted to the second control circuit 23. When the ~~corresponding~~ first Active signal is received, the second control circuit 23 immediately turns off the second switch 15, so that for the entire period duration of the second control ~~signals~~ signal on line 28 only a short time delay arises between turning off the first switch 14 and turning off the second switch 15, and this time delay has no significant effects on the generation of the switching signal.

On page 12, please replace the paragraph starting at line 9 with the following:

The first and second control circuits 22, 23 operate essentially in sync, which means that it is advantageous if the same clock signal CLK is applied to both control circuits 22, 23. The two control circuits 22, 23 are tuned to one another such that during a clock cycle only one of the two control circuits ever generates the control signal for turning off the respective switch 14, 15 independently without receiving the Active signal beforehand. Preferably, the two control circuits 22, 23 operate out of sync with regard to the turn-off signal, and particularly in a first clock cycle the first control circuit 22 generates the first control signal on line 27 for turning off the first switch 14 independently and the second control circuit 23 makes the second control signal on line 28 for turning off the second switch 15 dependent on the first switch 14 having been turned off. In a second clock cycle, the second control circuit 23 then generates the control signal on line 28 for turning off the second switch 15 independently of the first Active signal on line 24, and the first control circuit 22 on the basis of the second Active signal on line 25 generated by the second control circuit 23 when the second switch 15 is successfully turned off.

On page 14, please replace the paragraph starting at line 15 with the following:

In addition, a superordinate control system (not shown) [[is]] may be connected to the control units 22 and 23. If one were no longer to operate correctly, the superordinate control system ~~blocks~~ can block the enable signal on signal line 26, so that the control [[units]] circuits 22, 23 generate no more control signals.

Please replace the paragraph starting at line 18 on page 14 and concluding on page 15 with the following:

Figure 3 shows a signal diagram to illustrate the profiles of the clock signal CLK and the first and second control signals ST1, ST2. It can be seen that the first and second control circuits 22, 23 indicate that the respective switch has been turned on upon the rising edge of the clock signal by means of a likewise rising edge of the control ~~signal~~ signals ST1, ST2. For a particular period, the two control signals ST1, ST2 remain at the high levels. It can be seen that the first control signal ST1 turns off the first switch 14 with a rising edge. A suitable Active signal is then generated in the control circuit 22 if the switching operation was successful and no other fault has occurred. This signal is transmitted to the second control circuit 23, which generates the falling edge for the second control signal ST2 in order to turn off the second switch 15. Up to the next rising edge of the clock signal CLK, the control signals remain at a low level. Upon the next rising edge of the clock signal CLK, the two control signals ST1, ST2 change to a high level, with the second control circuit 23 now generating a falling edge of the second control signal ST2. The falling edge of the second control signal ST2 turns off the second switch 15, with an Active signal being generated if the second switch 15 has been turned off and no further fault has occurred. The Active signal then likewise turns off the first switch 14, with a negligible time delay, in line with a falling edge of the first control signal ST1. It is thus possible for the operation of the switches 14, 15 or of the components in the respective free-wheeling current path to be checked alternately, with generation of the control signals ST1, ST2 being stopped immediately if a fault is identified.

Please replace line 1 on page 16 with: "We Claim:"